ABSTRACT OF THE DISCLOSURE

The present invention provides the laser irradiation apparatus that has a galvanometer mirror and an f-θ lens optical system, can offset the change of the energy due to the transmittance change of the f-θ lens, and can scan a laser beam while the change of the energy on a substrate is suppressed. Further, the laser beam energy that is incident on the lens is controlled in advance by combining the optical system changing the branching ratio of polarization of the laser beam and the optical system having dependence on direction of polarization of the laser beam and changed continuously according to the transmittance of the lens on which the laser beam is incident. The laser energy is controlled to offset the transmittance of the lens, and thereby energy fluctuation of the laser beam irradiation of a substrate can be prevented.